

**TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT No. 93322**

I. INTRODUCTION

This Class I renewal permit is for the continued operation of Tucson Electric Power Company's (TEP) Springerville Generating Station (SGS). Permit No. 93322 renews and supersedes Permit No. 65614. A Class I permit is required because the emissions from the facility, for both criteria pollutants and hazardous air pollutants (HAPs) are above major source thresholds, as defined in Arizona Administrative Code (A.A.C.) R18-2-101.75.

A. Company Information

Facility Name: Springerville Generating Station

Mailing Address: PO Box 711, Mail Stop HQW 705
Tucson, AZ 85702

Facility Location: 10 miles north of Springerville, AZ on Hwy 191;
12 miles east on site access road

B. Attainment Classification

The air quality control region in which the subject facility is located either is unclassified or is classified as being in attainment of the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants: particulate matter less than 10 microns (PM₁₀), particulate matter less than 2.5 microns (PM_{2.5}), nitrogen dioxide (NO_x), sulfur dioxide (SO₂), carbon monoxide (CO), lead (Pb), and ozone (O₃).

II. PROPOSED CHANGES

A. Fossil fuel fired space heaters

As part of this renewal permitting action, TEP is proposing to add 41 diesel and propane-fired space heaters with capacities ranging from 0.3 to 0.65 million British thermal units per hour (MMBtu/hr) to the air quality permit.

B. Auxiliary Boiler

TEP proposed to remove the auxiliary boiler from the permit during this renewal permitting action.

C. Evaporative Water Systems (EWS)

TEP requested the removal of the EWS from the air quality permit since the facility is no longer operating this equipment.

III. PROCESS DESCRIPTION

A. Process Equipment

TEP SGS is a steam electric generating station which supplies electric power for sale to customers. The Springerville Generating Station consists of four coal-fired generating units designated as Unit 1, Unit 2, Unit 3 and Unit 4. All four units burn coal during normal operations except the period of start-up and flame stabilization for which fuel oil including bio-diesel is fired. Under normal full load operating conditions, the net megawatt ratings at the units are 387 megawatts (MW), 406 MW, 417 MW, and 415 MW. The facility is operated 24 hours a day and 365 days a year.

Major equipment for each generating unit consists of a coal-fired boiler, steam turbine electrical power generator, air pollution control equipment, a water-cooled surface steam condenser, boiler feed-water systems including condensate and feed-water pumps, feed-water heaters and a deaerator. Each unit is equipped with a circulating water system to provide cooling water to the steam condenser, including circulating water pumps, a mechanically-induced draft cooling tower to remove heat from the condenser circulating water system, a water supply pipeline, and water storage pond.

Unit 1 and Unit 2 boilers are tangentially-fired units and currently burn coal from El Segundo mine. Unit 3 and Unit 4 boilers are dry bottom wall-fired units and are primarily fired with Powder River Basin (PRB) coal. The principal components of each boiler include a membrane wall furnace, superheater, reheater, economizer, convection pass, pulverizers, and low NO_x burners.

Units 3 and 4 at SGS include wall-fired, subcritical steam generating units burning primarily subbituminous coal from the Powder River Basin (PRB) in Wyoming. Each unit has a nameplate capacity of 458.1 MW. Unit 3 began commercial operation in 2006 and Unit 4 began commercial operation in 2009.

Coal is delivered to the facility by train, unloaded by means of rotary car and transferred to storage via covered conveyor belts. Coal is reclaimed from storage for crushing and pulverizing and is fed to the boilers for burning. Dust collection and suppression systems are utilized at coal transfer points. Fuel oil and bio-diesel are delivered by train or truck and are stored in storage tanks.

The ash disposal system handles fly ash. Fly ash from the fabric filter baghouse is transferred via a pneumatic system to the fly ash silos. Bottom ash is removed from the boiler and processed in a dewatering system. Both fly ash and bottom ash are hauled by truck to the ash burial area located on site.

The maximum sustained process rates for the four boilers are provided in Table 1 below.

Table 1: Maximum Sustained Process Rate Estimates

Source	Hours	Process Rate	Annual Throughput (net)
Steam Unit 1	8760	387 MW (net)	3,390,120 MW-hr/yr
Steam Unit 2	8760	406 MW (net)	3,556,560 MW-hr/yr
Steam Unit 3	8760	417 MW (net)	3,652,920 MW-hr/yr

Steam Unit 4	8760	415 MW (net)	3,731,760 MW-hr/yr
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Table 2 below shows the operating scenarios for Unit 1, Unit 2, Unit 3 and Unit 4.

Table 2: Operating Scenarios

Typical Operating Parameters	Unit 1 Boiler	Unit 2 Boiler	Unit 3 Boiler	Unit 4 Boiler	Total for Units 1, 2, 3, and 4
Primary Fuel	Coal	Coal	Coal	Coal	N/A
Rated Production Rate (Net)	387 MW	406 MW	417 MW	415 MW	1636 MW
Estimated Max. Yearly Usage of primary fuel	2,022,515 TPY	2,038,193 TPY	2,090,455 TPY	2,090,455 TPY	8,241,617 TPY
Estimated Max. Hourly Usage	231 TPH	233 TPH	239 TPH	239 TPH	942 TPH
Primary Fuel Typical Heating Value	8,800 Btu/lb				N/A
Potential Sulfur Content-Primary fuel	2.0% max 1.0 - 1.2 % normal		1.0% max		N/A
Potential Ash Content	35% max; 18% normal		5%		N/A

B. Control Devices

Each of the four boilers is equipped with a fabric filter baghouse to capture particulate matter (PM) emissions and Flue Gas Desulfurization with Spray Dry Absorbers (SDA) to control sulfur dioxide (SO₂) emissions. To control nitrogen oxide (NO_x) emissions, Unit 1 and Unit 2 are equipped with low NO_x burners and overfire air (OFA) ports in conjunction with good operating practices whereas Unit 3 and Unit 4 utilize the low NO_x burners and selective catalytic reduction (SCR) control technology. All four units utilize pre-combustion calcium bromide injection and post-combustion activated carbon injection to control mercury (Hg) emissions.

Dust collection and suppression systems are utilized at various coal transfer points and baghouses are used in lime handling operations.

C. Process Flow Diagrams

See Appendix A.

IV. COMPLIANCE HISTORY

A. Compliance Report Reviews

A review of the compliance records for the facility indicates that there are no pending air quality cases. During the previous permit term, ADEQ reviewed the following 50 reports submitted for SGS:

- 16 Quarterly Excess Emissions and Monitoring System Performance Reports;
- 9 Semi-Annual Mercury and Air Toxics Standards (MATS) Rule Compliance Reports and New Source Performance Standards (NSPS) Subpart Da Reports;
- 10 Semi-Annual Excess Emission and Monitoring System Performance (EEMSP) Reports for the continuous emissions monitoring systems (CEMS);
- 10 Semi-Annual Compliance Certifications;
- 3 Permit Deviation Reports; and
- 2 Excess Emissions Reports.

Both excess emission reports were escalated to compliance and resulted in two (2) Notices of Violation (NOV), which are detailed in Section IV.C below.

B. On-site Inspections

ADEQ inspectors have conducted five (5) full site inspections, three (3) partial inspection of the facility, and attended five (5) performance tests during the permit term. Potential deficiencies were noted during an inspection on December 11, 2017 for the lime silo baghouse and the evaporative water system. An inspection conducted on July 27, 2022 resulted in the issuance of an NOV, discussed in Section IV.C below.

C. Informal Enforcement**1. Case No. 177171**

On July 25, 2018, TEP discovered that Unit 4 had exceeded the CO limit of 0.15 pounds per million Btu (lb/MMBtu), based on a 30-day rolling average, beginning July 16, 2018. After adjusting the boiler using the combustion optimization system, the daily values were reduced to less than 0.15 lb/MMBtu. ADEQ issued an NOV to TEP SGS on August 7, 2018 requiring TEP to implement an alert and communication system for the CO CEMS, submit CEMS data for August 1, 2018 through August 21, 2018 and the corresponding 30-day average emissions, and to implement permanent corrective actions to ensure the daily CO emissions are at a level where the 30-day rolling average CO limit will not be exceeded in the future. TEP submitted the required documentation and ADEQ closed the NOV on August 22, 2018.

2. Case No. 184395

On July 3, 2019, TEP reported that Unit 2 exceeded the 30-day boiler operating day rolling average emission limit for mercury (Hg) for a period of 19 days. The Permittee reported that feed system used to add calcium bromide to the coal failed during the week of June 3, 2019. TEP identified the calcium bromide feed failure during the week of June 10, 2019 and corrected the feed system issue. ADEQ issued an NOV to TEP SGS on July 16, 2019 requiring the Permittee to submit records of the 30-boiler operating day rolling averages from June 6, 2019 to July 15, 2019 and provide a root cause analysis for the calcium bromide pump and a corrective action plan to prevent the recurrence of the calcium bromide injection failure. TEP provided a response to the Department on July 25, 2019, and the NOV was closed on October 9, 2020.

3. Case No. 206427

During the ADEQ inspection, the ADEQ inspectors observed visible emissions from the top of the Unit 1 Fly Ash handling system. The ADEQ inspectors collected DOCS opacity observations (EPA Method Alt-082) which showed 32.08% opacity and 30.42% opacity, higher than the permitted limit of 20%. ADEQ issued an NOV on July 28, 2022 requesting documentation of work orders indicating corrective action(s) taken, a Method 9 observation documenting the opacity below 20%, and photographs of the observation. TEP provided a response to the NOV on August 4, 2022 stating there was a buildup of fly ash in the duct piping causing the equipment to malfunction. TEP shut the unit down and made the necessary repairs on July 30, 2022. ADEQ closed the NOV on August 4, 2022.

D. Performance Testing

Table 3 includes results for all annual performance tests conducted for Unit 1, Unit 2, Unit 3 and Unit 4 since the previous renewal permit was issued on September 11, 2017. All tests had passing results.

Table 3: Performance Test Results

Emission Unit	Date(s)	Pollutant Tested	Tested Emission Rate (Avg. of 3 Test Runs)	Permitted Emission Rate	Pass/Fail
Unit 4	5/21/2018-5/23/2018	Volatile organic compounds (VOC)	0.0021 lb/ton of coal	0.06 lb/ton of coal	Pass
Unit 4	5/21/2018-5/23/2018	Pb	0.00000060 lb/MMBtu	0.000016 lb/MMBtu	Pass
Unit 4	5/21/2018-5/23/2018	Hydrogen Fluoride (HF)	0.00014 lb/MMBtu	0.00044 lb/MMBtu	Pass
Unit 4	5/21/2018-5/23/2018	NO _x	0.89 lb/MW-hr	1.6 lb/MW-hr	Pass
Unit 4	5/21/2018-5/23/2018	CO	0.071 lb/MMBtu	0.15 lb/MMBtu	Pass
Unit 4	5/21/2018-5/23/2018	SO ₂	0.064 lb/MMBtu	0.690 lb/MMBtu	Pass
Unit 4	5/21/2018-5/23/2018	Removal Eff.	87.00%	70%	Pass
Unit 4	5/21/2018-5/23/2018	Hg	0.00000066 lb/MMBtu	0.0000069 lb/MMBtu	Pass
Unit 4	5/21/2018-5/23/2018	Particulate Matter (PM)	0.00052 lb/MMBtu	0.015 lb/MMBtu	Pass

Emission Unit	Date(s)	Pollutant Tested	Tested Emission Rate (Avg. of 3 Test Runs)	Permitted Emission Rate	Pass/Fail
Unit 4	5/21/2018-5/23/2018	Total PM	0.0055 lb/MMBtu	0.055 lb/MMBtu	Pass
Unit 4	5/21/2018-5/23/2018	Opacity	0.00%	15%	Pass
Unit 2	5/25/2018	PM	0.029 lb/MW-hr	0.15 lb/MW-hr	Pass
Unit 2	5/25/2018	PM	0.0032 lb/MMBtu	0.015 lb/MMBtu	Pass
Unit 2	5/25/2018	Hydrogen Chloride (HCl)	0.0010 lb/MW-hr	0.01 lb/MW-hr	Pass
Unit 2	5/25/2018	HCl	0.00010 lb/MMBtu	0.002 lb/MMBtu	Pass
Unit 2	5/25/2018	Opacity	0.00%	15%	Pass
Unit 2	5/25/2018	NO _x	0.208 lb/MMBtu	0.697 lb/MMBtu	Pass
Unit 2	5/25/2018	SO ₂	0.203 lb/MMBtu	0.690 lb/MMBtu	Pass
Unit 3	5/30/2018-6/01/2018	VOC	20.022 lb/ton of coal	0.06 lb/ton of coal	Pass
Unit 3	5/30/2018-6/01/2018	Pb	0.00000072 lb/MMBtu	0.000016 lb/MMBtu	Pass
Unit 3	5/30/2018-6/01/2018	HF	0.00013 lb/MMBtu	0.00044 lb/MMBtu	Pass
Unit 3	5/30/2018-6/01/2018	NO _x	0.75 lb/MW-hr	1.6 lb/MW-hr	Pass
Unit 3	5/30/2018-6/01/2018	CO	0.099 lb/MMBtu	0.15 lb/MMBtu	Pass
Unit 3	5/30/2018-6/01/2018	SO ₂	0.073 lb/MMBtu	0.690 lb/MMBtu	Pass
Unit 3	5/30/2018-6/01/2018	Removal Eff.	84.50%	70%	Pass
Unit 3	5/30/2018-6/01/2018	Hg	0.00000064 lb/MMBtu	0.0000069 lb/MMBtu	Pass
Unit 3	5/30/2018-6/01/2018	PM	0.0008 lb/MMBtu	0.015 lb/MMBtu	Pass
Unit 3	5/30/2018-6/01/2018	Total PM	0.028 lb/MMBtu	0.055 lb/MMBtu	Pass
Unit 3	5/30/2018-6/01/2018	Opacity	0.00%	15%	Pass
Unit 1	5/28/2018	PM	0.021 lb/MW-hr	0.15 lb/MW-hr	Pass
Unit 1	5/28/2018	PM	0.0023 lb/MMBtu	0.015 lb/MMBtu	Pass
Unit 1	5/28/2018	HCl	0.00093 lb/MW-hr	0.01 lb/MW-hr	Pass
Unit 1	5/28/2018	HCl	0.00010 lb/MMBtu	0.002 lb/MMBtu	Pass
Unit 1	5/28/2018	Opacity	0.00%	15%	Pass
Unit 1	5/28/2018	NO _x	0.196 lb/MMBtu	0.697 lb/MMBtu	Pass
Unit 1	5/28/2018	SO ₂	0.184 lb/MMBtu	0.690 lb/MMBtu	Pass
Unit 1	5/29/2019	PM	0.0052 lb/MMBtu	0.03 lb/MMBtu	Pass
Unit 1	5/29/2019	NO _x	0.196 lb/MMBtu	0.22 lb/MMBtu	Pass
Unit 1	5/29/2019	SO ₂	0.184 lb/MMBtu	0.27 lb/MMBtu	Pass
Unit 1	5/29/2019	Opacity	0%	15%	Pass
Unit 4	6/03/2019-6/04/2019	PM	0.00050 lb/MMBtu	0.015 lb/MMBtu	Pass
Unit 4	6/03/2019-6/04/2019	PM ₁₀	0.014 lb/MMBtu	0.055 lb/MMBtu	Pass
Unit 4	6/03/2019-6/04/2019	NO _x	0.69 lb/MWh	1.0 lb/MWh	Pass
Unit 4	6/03/2019-6/04/2019	SO ₂	0.73 lb/MWh	1.4 lb/MWh	Pass
Unit 4	6/03/2019-6/04/2019	CO	0.076 lb/MMBtu	0.15 lb/MMBtu	Pass
Unit 4	6/03/2019-6/04/2019	Opacity	0.00%	15%	Pass

Emission Unit	Date(s)	Pollutant Tested	Tested Emission Rate (Avg. of 3 Test Runs)	Permitted Emission Rate	Pass/Fail
Unit 2	5/29/2019-5/31/2019	PM	0.0023 lb/MMBtu	0.03 lb/MMBtu	Pass
Unit 2	5/29/2019-5/31/2019	NO _x	0.19 lb/MMBtu	0.22 lb/MMBtu	Pass
Unit 2	5/29/2019-5/31/2019	SO ₂	0.13 lb/MMBtu	0.27 lb/MMBtu	Pass
Unit 2	5/29/2019-5/31/2019	VEO	0.00%	15%	Pass
Unit 3	5/29/2019-5/31/2019	PM	0.0012 lb/MMBtu	0.015 lb/MMBtu	Pass
Unit 3	6/05/2019-6/07/2019	PM ₁₀	0.026 lb/MMBtu	0.055 lb/MMBtu	Pass
Unit 3	6/05/2019-6/07/2019	NO _x	1.3 lb/MWh	1.6 lb/MWh	Pass
Unit 3	6/05/2019-6/07/2019	SO ₂	0.0083 lb/MMBtu	1.20 lb/MMBtu	Pass
Unit 3	6/05/2019-6/07/2019	Opacity	0.00%	15%	Pass
Unit 3	7/05/2020-7/07/2020	PM	0.0023 lb/MMBtu	0.015 lb/MMBtu	Pass
Unit 3	7/05/2020-7/07/2020	PM (LEE)	0.0023 lb/MMBtu	0.0075 lb/MMBtu	Pass
Unit 3	7/05/2020-7/07/2020	PM ₁₀	0.011 lb/MMBtu	0.055 lb/MMBtu	Pass
Unit 3	7/05/2020-7/07/2020	PM ₁₀ (LEE)	0.011 lb/MMBtu	0.0275 lb/MMBtu	Pass
Unit 3	7/05/2020-7/07/2020	NO _x	0.038 lb/MWh	1.6 lb/MWh	Pass
Unit 3	7/05/2020-7/07/2020	SO ₂	0.080 lb/MMBtu	1.2 lb/MMBtu	Pass
Unit 3	7/05/2020-7/07/2020	CO	0.011 lb/MMBtu	0.15 lb/MMBtu	Pass
Unit 3	7/05/2020-7/07/2020	Opacity	0.0% Opacity	15% Opacity	Pass
Unit 4	7/05/2020-7/07/2020	PM	0.00099 lb/MMBtu	0.015 lb/MMBtu	Pass
Unit 4	7/05/2020-7/07/2020	PM (LEE)	0.00099 lb/MMBtu	0.0075 lb/MMBtu	Pass
Unit 4	7/05/2020-7/07/2020	PM ₁₀	0.014 lb/MMBtu	0.055 lb/MMBtu	Pass
Unit 4	7/05/2020-7/07/2020	PM ₁₀ (LEE)	0.014 lb/MMBtu	0.0275 lb/MMBtu	Pass
Unit 4	7/05/2020-7/07/2020	NO _x	0.54 lb/MWh	1.0 lb/MWh	Pass
Unit 4	7/05/2020-7/07/2020	SO ₂	0.89 lb/MWh	1.4 lb/MWh	Pass
Unit 4	7/05/2020-7/07/2020	CO	0.027 lb/MMBtu	0.15 lb/MMBtu	Pass
Unit 4	7/05/2020-7/07/2020	Opacity	0.0% Opacity	15% Opacity	Pass
Unit 1	7/01/2020-7/03/2020	PM	0.0068 lb/MMBtu	0.03 lb/MMBtu	Pass
Unit 1	7/01/2020-7/03/2020	PM (LEE)	0.0068 lb/MMBtu	0.015 lb/MMBtu	Pass
Unit 1	7/01/2020-7/03/2020	NO _x	0.19 lb/MMBtu	0.22 lb/MMBtu	Pass
Unit 1	7/01/2020-7/03/2020	SO ₂	0.020 lb/MMBtu	0.27 lb/MMBtu	Pass
Unit 1	7/01/2020-7/03/2020	HCl (LEE)	0.00014 lb/MMBtu 0.0012 lb/MWh	< 0.12 lb/TBtu; or <29 lb/yr	Pass
Unit 1	7/01/2020-7/03/2020	HCl (LEE)	0.00014 lb/MMBtu 0.0012 lb/MWh	< 0.12 lb/TBtu; or <29 lb/yr	Pass
Unit 1	7/01/2020-7/03/2020	Opacity	0.0% Opacity	15% Opacity	Pass
Unit 2	7/01/2020-7/03/2020	PM	0.0073 lb/MMBtu	0.03 lb/MMBtu	Pass
Unit 2	7/01/2020-7/03/2020	PM (LEE)	0.0073 lb/MMBtu	0.015 lb/MMBtu	Pass
Unit 2	7/01/2020-7/03/2020	NO _x	0.18 lb/MMBtu	0.22 lb/MMBtu	Pass
Unit 2	7/01/2020-7/03/2020	SO ₂	0.019 lb/MMBtu	0.27 lb/MMBtu	Pass

Emission Unit	Date(s)	Pollutant Tested	Tested Emission Rate (Avg. of 3 Test Runs)	Permitted Emission Rate	Pass/Fail
Unit 2	7/01/2020-7/03/2020	HCl (LEE)	0.00016 lb/MMBtu 0.0014 lb/MWh	< 0.12 lb/TBtu; or <29 lb/yr	Pass
Unit 2	7/01/2020-7/03/2020	Opacity	0.0% Opacity	15% Opacity	Pass
Total	7/01/2020-7/03/2020	HCl (LEE)	0.00030 lb/MMBtu 0.0026 lb/MWh	0.001 lb/MMBtu 0.01 lb/MWh	Pass
Unit 1	8/03/2021-8/04/2021	PM	0.0051 lb/MMBtu 0.047 lb/MWh	0.03 lb/MMBtu 0.3 lb/MWh	Pass
Unit 1	8/03/2021-8/04/2021	Visible Emissions	0% Opacity	15% Opacity	Pass
Unit 1	8/03/2021-8/04/2021	NO _x	0.174 lb/MMBtu	0.697 lb/MMBtu	Pass
Unit 1	8/03/2021-8/04/2021	SO ₂	0.215 lb/MMBtu	0.690 lb/MMBtu	Pass
Unit 2	6/02/2021-6/08/2021	PM	0.017 lb/MMBtu 0.14 lb/MWh	0.03 lb/MMBtu 0.3 lb/MWh	Pass
Unit 2	6/02/2021-6/08/2021	Opacity	5% Opacity	15% Opacity	Pass
Unit 2	6/02/2021-6/08/2021	NO _x	0.173 lb/MMBtu	0.697 lb/MMBtu	Pass
Unit 2	6/02/2021-6/08/2021	SO ₂	0.206 lb/MMBtu	0.690 lb/MMBtu	Pass
Unit 3	6/02/2021-6/08/2021	Filterable PM	0.0021 lb/MMBtu	0.015 lb/MMBtu	Pass
Unit 3	6/02/2021-6/08/2021	Filterable PM	0.021 lb/MWh	0.3 lb/MWh	Pass
Unit 3	6/02/2021-6/08/2021	Total PM	0.012 lb/MMBtu	0.055 lb/MMBtu	Pass
Unit 3	6/02/2021-6/08/2021	Opacity	1.3% Opacity	15% Opacity	Pass
Unit 4	6/02/2021-6/08/2021	Filterable PM	0.0025 lb/MMBtu	0.015 lb/MMBtu	Pass
Unit 4	6/02/2021-6/08/2021	Filterable PM	0.023 lb/MWh	0.14 lb/MWh	Pass
Unit 4	6/02/2021-6/08/2021	Total PM	0.0060 lb/MMBtu	0.055 lb/MMBtu	Pass
Unit 4	6/02/2021-6/08/2021	Opacity	1.3% Opacity	15% Opacity	Pass
Unit 1	6/13/2022-6/15/2022	PM	0.009 lb/MMBtu 0.09 lb/MWh	0.03 lb/MMBtu 0.3 lb/MWh	Pass
Unit 1	6/13/2022-6/15/2022	Visible Emissions	0% Opacity	15% Opacity	Pass
Unit 1	6/13/2022-6/15/2022	NO _x	0.269 lb/MMBtu	0.697 lb/MMBtu	Pass
Unit 1	6/13/2022-6/15/2022	SO ₂	0.277 lb/MMBtu	0.690 lb/MMBtu	Pass
Unit 2	6/13/2022-6/16/2022	PM	0.006 lb/MMBtu 0.05 lb/MWh	0.03 lb/MMBtu 0.3 lb/MWh	Pass
Unit 2	6/13/2022-6/16/2022	Opacity	0% Opacity	15% Opacity	Pass
Unit 2	6/13/2022-6/16/2022	NO _x	0.254 lb/MMBtu	0.697 lb/MMBtu	Pass
Unit 2	6/13/2022-6/16/2022	SO ₂	0.378 lb/MMBtu	0.690 lb/MMBtu	Pass
Unit 3	6/20/2022	Filterable PM	0.003 lb/MMBtu	0.015 lb/MMBtu	Pass
Unit 3	6/20/2022	Total PM	0.026 lb/MMBtu	0.055 lb/MMBtu	Pass
Unit 3	6/20/2022	Opacity	0% Opacity	15% Opacity	Pass
Unit 4	6/23/2022	Filterable PM	0.003 lb/MMBtu	0.015 lb/MMBtu	Pass
Unit 4	6/23/2022	Filterable PM	0.02 lb/MWh	0.14 lb/MWh	Pass

Emission Unit	Date(s)	Pollutant Tested	Tested Emission Rate (Avg. of 3 Test Runs)	Permitted Emission Rate	Pass/Fail
Unit 4	6/23/2022	Total PM	0.007 lb/MMBtu	0.055 lb/MMBtu	Pass
Unit 4	6/23/2022	Opacity	0% Opacity	15% Opacity	Pass

V. EMISSIONS

The potential-to-emit (PTE) for SGS was calculated using emissions factors from the United States Environmental Protection Agency's AP-42: Fifth Edition Compilation of Emissions Factors, Volume 1: Stationary Point and Area Sources (AP-42), performance testing results, permitted emission limits, and additional supplementary documents discussed below.

A. Boilers (Unit 1, Unit 2, Unit 3 and Unit 4)

Expected pollutants from the stacks of the EGUs include PM, PM₁₀, PM_{2.5}, NO_x, SO₂, CO, VOC, HAPs including HCl, HF, H₂SO₄, Pb, and Hg, and greenhouse gases (GHGs). Emission factors for these pollutants were derived from emission limitations in the air quality permit, the tables in AP-42 Section 1.1, 40 CFR Part 98 Subpart A Table A-1 and Subpart C Tables C-1 and C-2. Emission calculations for each pollutant were estimated using the maximum expected boiler firing rate or coal throughput for each unit.

B. Coal Handling and Coal Reclaim Systems

Particulate matter emissions are expected from coal handling and coal reclaim systems for all four Units. Emission factors for these operations were calculated using equation 1 in AP-42, Section 13.2.4. The emission factor was multiplied by the maximum throughput for each of the operations and the assumed control efficiencies to determine the potential to emit.

C. Wind Erosion and Maintenance of Coal Piles

Particulate matter emission factors for wind erosion of the coal pile were estimated using Equation 9 in Section 4.1.3. "Wind Emissions from Continuously Active Piles" from the Environmental Protection Agency (EPA) document entitled *Control of Open Fugitive Dust Sources*, (EPA-450/3-98-008). To estimate annual fugitive emissions of particulate matter, the calculated emission factors were multiplied by the annual average surface area of the piles and the assumed control efficiencies. PM₁₀ and PM_{2.5} emissions were assumed to be 50% and 20% of total particulate matter emissions.

Emissions of particulate matter associated with the maintenance of the coal piles was calculated using the equation for bulldozing found in AP-42 Table 11.9-1. The PTE for this activity was calculated assuming annual operations of 8,760 hours per year.

D. Hauling

1. Unpaved Roads

Particulate matter emissions from hauling ash for disposal and materials for the refined coal facility were estimated using Equations 1a and 2 from AP-42 Section

13.2.2 and constants from Tables 13.2.2-2 and 13.2.2-3. Annual emissions were estimated by multiplying the calculated emission factors by the vehicle miles traveled per year and the control efficiency assuming watering and chip seal.

2. Paved Roads

Particulate matter emissions associated with truck traffic on paved roads were calculated using Equation 2 in AP-42 Section 13.2.1. The emission factor was multiplied by the estimated maximum vehicle miles traveled per year.

E. Lime & Ash Handling Operations

Particulate matter emissions from the ash and lime handling operations were estimated using the emission factors found in Air Pollution Engineering Manual (2000 Ed). Each of the associated emission factors were multiplied by the respective control efficiencies and the maximum process rates in tons per hour.

F. Cooling Towers

Particulate matter emissions from the cooling towers were calculated using the method outlined in AP-42 Section 13.4-1. Emissions for all cooling towers were calculated using the maximum possible water circulation rate, concentration of total dissolved solids (TDS), fraction of flow producing drift and the control efficiency of the drift eliminators for the units.

G. Engines

Emissions for the fire pump and emergency engines were estimated by multiplying emission factors for each pollutant by the power rating of the engine and by 500 hours per year. Emission factors for the criteria pollutants and HAPs were obtained from AP-42 Table 3.4-1, AP-42 Table 3.3-1 and 40 CFR 60 Subpart IIII. Greenhouse gas emissions were estimated using 40 CFR Part 98 Subpart A Table A-1 and Subpart C Tables C-1 and C-2.

H. Fossil Fuel Fired Space Heaters

As part of this renewal permitting action, TEP is proposing to install 42 diesel and propane fired space heaters. Emissions of PM₁₀, PM_{2.5}, NO_x, SO₂, VOC, Pb, and HAPS were calculated using AP-42 Section 1.3 for diesel fired units and AP-42 Section 1.5 for propane fired units. Greenhouse gas emissions were calculated using the emission factors from AP-42 as well as the global warming potentials listed in Appendix Table A-1 to Subpart A of 40 CFR Part 98.

Table 4: PTE for New Space Heaters

Pollutant	PTE for Space Heaters	Permitting Exemption Threshold	Minor NSR Triggered?	Significant Thresholds	Major NSR Triggered?
NO _x	12.6	20	No	40	No

Pollutant	PTE for Space Heaters	Permitting Exemption Threshold	Minor NSR Triggered?	Significant Thresholds	Major NSR Triggered?
PM ₁₀	2.0	7.5	No	15	No
PM _{2.5} *	2.0	5	No	10	No
CO	3.4	50	No	100	No
SO ₂	0.1	20	No	40	No
VOC	0.4	20	No	40	No
Pb	0.001	0.3	No	0.6	No
HAPs	0.004	N/A	N/A	N/A	N/A
GHG (CO ₂ e)	13,948.7	--	N/A	75,000	No

*Assumes PM₁₀=PM_{2.5}

The facility has a PTE more than the major source thresholds of PM₁₀, PM_{2.5}, SO₂, NO_x, CO, VOC, HAPs, and GHG. The removal of the auxiliary boiler from the facility significantly reduced emissions of SO₂, NO_x, and GHG. The facility's updated PTE, including the changes discussed in Section II, is provided in Table 5 below:

Table 5: Facility-Wide Potential to Emit (tpy)*

Pollutant	PTE
PM ₁₀	4,204
PM _{2.5}	1,928
SO ₂	10,803
NO _x	9,629
CO	6,213
VOC	249.4
Pb	1.44
HAPs	127.4
GHG (CO ₂ e)	19,939,596

VI. MINOR NEW SOURCE REVIEW (NSR)

Minor new source review is required if the emissions of a new source have the potential to emit any regulated minor NSR pollutant at an amount greater than or equal to the permitting exemption threshold (PET). The change in emissions described in Table 4 above demonstrate that the new emission units will not result in any increase of a regulated minor NSR pollutant above the permitting exemption threshold and therefore does not trigger requirements for minor NSR.

VII. MAJOR NEW SOURCE REVIEW

A major modification is a physical change, or change in the operation of a major stationary source that would result in a significant emissions increase of a regulated NSR pollutant and a significant net increase of that pollutant from the stationary source. The PTE for the addition of the space heaters does not exceed significant thresholds, thus, the change is not subject to major NSR requirements.

VIII. VOLUNTARILY ACCEPTED EMISSION LIMITATIONS AND STANDARDS

TEP has accepted the following voluntary emission limitations and standards under A.A.C. R18-2-306.01 for Unit 1, Unit 2, Unit 3 and Unit 4:

A. Sulfuric Acid Mist

Unit 1, Unit 2, Unit 3 and Unit 4 are subject to a 211 tpy emission cap for H₂SO₄ based on a 12-month rolling total. The emission limit was accepted during Significant Permit Revision No. 1001554 to Permit No. 10000105 for the installation of Unit 3 and Unit 4. The emission limit was accepted to avoid triggering a significant net increase in emissions, and thus avoiding Prevention of Significant Deterioration (PSD) review for this pollutant.

B. Lead

TEP voluntarily accepted a 0.000016 lb/MMBtu emission limit for each unit based on a 3-hour rolling average. The lead emission limit was necessary and sufficient to ensure that the Unit 3 and Unit 4 installation would not result in a significant net increase in emissions.

IX. APPLICABLE REGULATIONS

Table 6 identifies applicable regulations and verification as to why that standard applies. The table also contains a discussion of any regulations the emission unit is exempt from.

Table 6: Applicable Regulations

Unit	Start Up Date	Control Device(s)	Rule(s)	Discussion
Boilers- Unit 1 and Unit 2	Unit 1 and Unit 2: January, 1978 (commenced construction) May, 1985 and June, 1990 (commercial operation)	Fabric filter baghouses Dry flue gas desulfurization Activated carbon and calcium	40 CFR 60, Subpart D and EPA Approval to Construct, dated Dec. 21, 1977	Unit 1 and Unit 2 commenced construction after August 17, 1971 and both have capacity greater than 73 MW. Therefore, requirements of New Source Performance Standards (NSPS) Subpart D are applicable. The emission limits in the EPA Approval to Construct are more stringent than NSPS limits. Therefore, the emission limits from this Approval are incorporated in the permit.

Unit	Start Up Date	Control Device(s)	Rule(s)	Discussion
		bromide injection	40 CFR Part 64	Unit 1 and Unit 2 are subject to Compliance Assurance Monitoring (CAM) (See Section XII).
			40 CFR 63, Subpart UUUUU	National Emission Standards for Hazardous Air Pollutants (NESHAP): Coal- and Oil-Fired Electric Utility Steam Generating Units – Units 1 and 2 were constructed prior to May 3, 2011 and therefore are existing EGUs under Subpart UUUUU. There are applicable standards for filterable PM, SO ₂ , and mercury (Hg).
			40 CFR Part 72-78	Unit 1 and Unit 2 are subject to the Acid Rain Program.
Boilers- Unit 3 and Unit 4	Unit 3 and Unit 4 : (commenced construction after Sept. 18, 1978) July 20, 2006 and Dec. 17, 2009 respectively (commercial operation)	Fabric filter baghouse Dry flue gas desulfurization SCR Activated carbon and calcium bromide injection	40 CFR 60, Subpart Da	Unit 3 and Unit 4 commenced construction after September 18, 1978 and both have capacity greater than 73 MW each, therefore, the requirements of NSPS, 40 CFR 60 Subpart Da are applicable. Best Available Control Technology (BACT) limits for opacity and PM are more stringent than NSPS limits. Therefore, the BACT emission limits are incorporated in the permit.
			40 CFR 64 (CAM)	Unit 3 and Unit 4 are subject to CAM (See Section XII).
			40 CFR 63, Subpart UUUUU	The NESHAP for Coal- and Oil-Fired Electric Utility Steam Generating Units – Units 1 and 2 were constructed prior to May 3, 2011 and therefore are existing EGUs under Subpart UUUUU. There are applicable standards for filterable PM, SO ₂ , and mercury (Hg).
			40 CFR 72-78	Unit 3 and Unit 4 are subject to the Acid Rain Program.
Diesel Fuel Storage Tanks	Unit 1, Unit 2, Unit 3 – 1973 Unit 4 – 2008	N/A	A.A.C. R18-2-730	Diesel fuel storage tanks are exempt from NSPS Subpart K and Ka under 40 CFR 60.111(b) and 40 CFR 60.111a(b). NSPS Subpart Kb excludes storage tanks with a true vapor pressure less than 15.0 kilopascals (kPa), which includes the

Unit	Start Up Date	Control Device(s)	Rule(s)	Discussion
				storage tanks at SGS. For the reasons listed above, the diesel fuel storage tanks are exempt from NSPS Subpart K, Ka and Kb. The existing source performance standards for unclassified sources under A.A.C. R18-2-730 is applicable to the storage tanks.
Diesel fired emergency ICEs and fire pumps	Fire Pump for Unit 4 – 2007 Emergency diesel generator, Unit 1 and Unit 2 - 2019	None	NSPS Subpart IIII	NSPS Subpart IIII is applicable to engines manufactured after April 2006. One emergency diesel fire pump at SGS was manufactured in 2007 and another emergency diesel generator for Unit 1 and Unit 2 was manufactured in 2019. Therefore, NSPS Subpart IIII is applicable to both engines.
			NESHAP, Subpart ZZZZ	The compression ignition engines are located at a major source of HAP emissions, and therefore subject to the requirements of 40 CFR 63 Subpart ZZZZ. The requirements under 40 CFR 63.6590(c) state that a facility meeting the requirements of NSPS Subpart IIII has no other applicable requirements under NESHAP Subpart ZZZZ.
Diesel Fired Emergency ICEs and fire pumps	1985, 1999 and 2004	None	A.A.C. R18-2-719	The engines listed in this section are manufactured prior to April 2006, and therefore are not subject to NSPS Subpart IIII. The Standards of Performance for Existing Stationary Rotating Machinery are applicable to these units.
			NESHAP, Subpart ZZZZ	The compression ignition engines listed are subject to the requirements of 40 CFR 63 Subpart ZZZZ since they are considered stationary reciprocating internal combustion engines that are located at a major source of HAP emissions.
Propane Fired	2017	None	40 CFR 60 Subpart JJJJ	NSPS Subpart JJJJ is applicable to spark ignition engines that

Unit	Start Up Date	Control Device(s)	Rule(s)	Discussion
Standby Guardhouse Engine				commenced construction after June 12, 2006. Since the engine commenced construction after this date, it is subject to 40 CFR 60 Subpart III.
			40 CFR 63 Subpart ZZZZ	The spark ignition engine is located at a major source of HAP emissions, and therefore subject to the requirements of 40 CFR 63 Subpart ZZZZ. The requirements under 40 CFR 63.6590(c) state that a facility meeting the requirements of NSPS Subpart JJJJ has no other applicable requirements under NESHAP Subpart ZZZZ.
Cooling Towers	N/A	Drift eliminators	A.A.C. R18-702.B.3 and 730	Since chromium-based water treatment chemicals are not used (NESHAP Subpart Q), the cooling towers are subject to the particulate matter in A.A.C. R18-2-730 and the general visible emissions standard.
Coal Preparation Plant		Dust Collectors	40 CFR 60, Subpart Y and A.A.C. R18-2-614	<p>The coal handling system has a throughput of more than 200 tons per day and was constructed after October 24, 1974; therefore, the coal preparation plant is subject to the requirements of NSPS, Subpart Y. BACT limits accepted during the Unit 3 and Unit 4 installation permit are more stringent than the requirements of NSPS Subpart Y and have been incorporated in the permit.</p> <p>The coal storage piles are not subject to NSPS Subpart Y, and therefore are subject to the opacity requirements for nonpoint source emissions under A.A.C. R18-2-614</p>
Refined Coal Facility	N/A		A.A.C. R18-2-730 and -702	The refined coal facility is subject to the requirements of the Standards of Performance for Unclassified sources under A.A.C. R18-2-730 and the general visible emissions standard under A.A.C. R18-2-702.

Unit	Start Up Date	Control Device(s)	Rule(s)	Discussion
Lime Handling Units	N/A	Lime Silos Collector Baghouses at Water Treatment Silos (4)	A.A.C. R18-702.B.3 and -730	Since SGS only handles lime, it is subject to particulate matter standard under A.A.C. R18-2-730 and the general visible emissions standard under A.A.C. R18-2-702. BACT limits imposed during the Unit 3 and Unit 4 installation permitting action are more stringent and have been incorporated in the permit.
Fly Ash Handling Units	N/A	Dust Collectors	A.A.C. R18-702.B.3 and 730	The ash handling is subject to the particulate matter standard under A.A.C. R18-2-730, the general visible emissions standard under A.A.C. R18-2-702, and BACT limits. BACT limits applicable to Unit 3 and Unit 4 are more stringent and have been incorporated in the permit for Ash Handling Unit 3 and Unit 4.
Unit 1, 2 and 4 Activated Carbon Silos	2015, 2015 and 2007	Vent filter	A.A.C. R18-702.B and -730	The activated carbon silo is subject to the particulate matter standard under A.A.C. R18-2-730 and the general visible emissions standard under A.A.C. R18-2-702.
Solvent Cleaners/ Degreasers	N/A	N/A	A.A.C. R18-2-730	These standards are applicable to existing unclassified sources.
Fugitive dust sources	N/A	Water Trucks, Dust Suppressants	A.A.C. R18-2 Article 6 A.A.C. R18-2-702	These standards are applicable to all fugitive dust sources at the facility.
Abrasive Blasting	N/A	Wet blasting; Dust collecting equipment; Other approved methods	A.A.C. R18-2-702 A.A.C. R18-2-726	These standards are applicable to any abrasive blasting operation.
Spray Painting	N/A	Enclosures	A.A.C. R18-2-702 A.A.C. R-18-2-727	These standards are applicable to any spray-painting operation.

Unit	Start Up Date	Control Device(s)	Rule(s)	Discussion
Demolition/renovation Operations	N/A	N/A	A.A.C. R18-2-1101.A.12	This standard is applicable to any asbestos related demolition or renovation operations.

X. PREVIOUS PERMIT REVISIONS AND CONDITIONS

A. Previous Permit Revisions

Table 7 provides a description of the permit revisions made to Permit No. 65614 during the previous permit term.

Table 7: Permit Revisions to Permit No. 65614

Permit Revision No.	Permit Revision Type	Brief Description
81535	Minor Permit Revision (MPR)	Authorizes the installation/addition of a refined coal facility.
84197	MPR	This MPR authorized the replacement of the emergency engine for Unit 1 and Unit 2 with a new diesel engine.
91093	Significant Permit Revision (SPR)	Incorporates a more stringent emission limit and associate monitoring, recordkeeping and reporting requirements for Unit 3. This SPR also incorporates Attachment "E".
93974	MPR	Authorizes TEP to monitor the heat input for Unit 3 and Unit 4 using coal sampling as an alternative to using Part 75.

B. Changes to Current Renewal

Table 8 addresses the changes made to the sections and conditions from Permit No. 97974.

Table 8: Previous Permit Conditions

Section No.	Determination			Comments
	Added	Revised	Deleted	
Att. "A"		X		General Provisions: Revised to represent the most recent template language.
Att. "B" Section I		X		Facility Wide Requirements: Revised to represent the most recent template language.
Att. "B" Condition			X	Unit 1 and Unit 2 (P1 and P2)

Section No.	Determination			Comments
	Added	Revised	Deleted	
II.B.1.a(1) and B.1.b				Fuel requirements were removed from the permit since these standards are not required under NSPS, NESHAP or the A.A.C.
Att. "B" Condition II.B.3		X		Unit 1 and Unit 2 (P1 and P2) Removed Unit 3 from the fuel oil storage tank requirements and added it to Condition III.B.3.
Att. "B" Condition II.D.4			X	Unit 1 and Unit 2 (P1 and P2) Performance testing requirements for SO ₂ were removed from the permit since the units operate CEMS to demonstrate compliance with the SO ₂ emission limitations.
Att. "B" Condition II.E.3			X	Unit 1 and Unit 2 (P1 and P2) Performance testing requirements for NO _x were removed from the permit since the units operate CEMS to demonstrate compliance with the NO _x emission limitations.
Att. "B" Condition III.B.1.a			X	Unit 3 and Unit 4 (P3 and P4) Removed fuel requirements from the permit since these standards are not required under NSPS, NESHAP or the A.A.C.
Att. "B" Condition III.B.4		X		Unit 3 and Unit 4 (P3 and P4) Moved associated monitoring, recordkeeping and reporting requirements from Condition III.B.3 and J.5 to this section for readability.
Att. "B" Condition III.C.1.b(4)(c)	X			Unit 3 and Unit 4 (P3 and P4) Added clarification that the limits contained in III.C.1.b(4)(c) apply at all times except for periods of startup, shutdown or malfunction.
Att. "B" Condition III.C.3.c(2)(a)		X		Unit 3 and Unit 4 (P3 and P4) This requirement was moved to the performance testing section of the permit (Condition III.C.4.a(3)).
Att. "B" Condition III.C.3.c(2)(c) and c(3)	X			Unit 3 and Unit 4 (P3 and P4) Added 40 CFR 60.48Da(o)(2)(vi) and 60.49Da(v) requirements.
Att. "B" Condition III.D.1.a		X		Unit 3 and Unit 4 (P3 and P4) Added requirements from 40 CFR 60.43Da(a)(3) and (4).
Att. "B" Condition III.D.3.a(4), E.3.a(3), and J.3.c	X			Unit 3 and Unit 4 (P3 and P4) Added 40 CFR 60.49Da(e) which states that the SO ₂ , NO _x , CO ₂ and O ₂ CEMS shall be operated at all times including startup, shutdown, and malfunction, except for CEMS breakdowns, repairs, calibration checks, and zero and span adjustments.

Section No.	Determination			Comments
	Added	Revised	Deleted	
Att. "B" Condition III.D.3.b(2)(d)	X			Unit 3 and Unit 4 (P3 and P4) Added the requirements of 40 CFR 60.49Da(h)(4).
Att. "B" Condition III.D.3.f(4)			X	Unit 3 and Unit 4 (P3 and P4) These requirements are no longer in 40 CFR 60.51Da(d).
Att. "B" Condition III.D.4.g and h			X	Unit 3 and Unit 4 (P3 and P4) These requirements are duplicates of the requirements in Condition III.D.3.b(2).
Att. "B" Condition III.E.4.c			X	Unit 3 and Unit 3 (P3 and P4) This requirement is a duplicate of Condition III.E.3.b(5).
Att. "B" Condition III.F.3			X	Unit 3 and Unit 4 (P3 and P4) Performance testing requirements for CO emissions for Unit 3 and Unit 4 were removed. The emission limits for the units are based on a 30-day rolling average, measured by a CEMS.
Att. "B" Condition III.H.2	X			Unit 3 and Unit 4 (P3 and P4) CAM requirements for HF were added to the permit.
Att. "B" Condition III.J.1.b		X		Unit 3 and Unit 4 (P3 and P4) Revised to reflect the language in 40 CFR 60.49Da(m).
Att. "B" Condition III.J.5		X		Unit 3 and Unit 4 (P3 and P4) Heat Input Measurement requirements were moved to Section III.B.4.
Att. "B" Condition IV.E.2.b and c		X		Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards Definition for "shutdown" was updated to reflect the language in NSPS Subpart Da and the definition of "deviation" was moved to this section from IV.E.10.
Att. "B" Condition IV.E.3.b(1)		X		Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards Added requirement to collect data, calculate pollutant emission rates and record data during startup and shutdown periods.
Att. "B" Condition IV.E.3.b(6)	X			Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards Added requirement from 40 CFR 60.10021(h)(1).
Att. "B" Condition IV.E.4.c(2)		X		Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards Revised the condition to reflect updated language in 40 CFR 63.10021(e)(9).

Section No.	Determination			Comments
	Added	Revised	Deleted	
Att. "B" Condition IV.E.6		X		Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards Added "on a continuous 30-boiler operating day rolling average basis" to all of the emission limits in this section.
Att. "B" Condition IV.E.8.b(2)(a)		X		Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards Updated the condition to reflect the requirement in the MATS rule.
Att. "B" Condition IV.E.9.b(1)		X		Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards Updated condition to reflect 40 CFR 63.10020(b).
Att. "B" Condition IV.E.9.b(3)				Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards Updated condition to reflect 40 CFR 63.10020(d).
Att. "B" Condition IV.E.9.b(4)		X		Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards Updated the definition of "out of control" per 63.10042.
Att. "B" Condition IV.E.9.c		X		Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards Updated this section to reflect the language in 40 CFR 63.10010(i).
Att. "B" Condition IV.E.9.d(4)	X			Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards Added sorbent trap requirements from 40 CFR 63.10000(c)(vi)(A) and (B).
Att. "B" Condition IV.E.9.e(2)		X		Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards Added clarification from 60.10010(e).
Att. "B" Condition IV.E.11		X		Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards Significant portions of the reporting requirements of 40 CFR 63 Subpart UUUUU were updated on September 9, 2020. This section of the permit has been updated to reflect the changes.
Att. "B" Condition IV.E.12.a		X		Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards This condition was updated to reflect the language in 40 CFR 63.10032(a).
Att. "B" Condition IV.E.12.d(2)			X	Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards This requirement was a duplicate of Condition IV.E.7.d.
Att. "B" Condition IV.E.12.l	X			Unit 1, Unit 2, Unit 3, and Unit 4 (P1, P2, P3, and P4) – Combined Limits and Mercury Standards The requirements of 40 CFR 63.10007(g) were added.

Section No.	Determination			Comments
	Added	Revised	Deleted	
Att. "B" Section V			X	Auxiliary Boiler (P5) Requirements for the auxiliary boiler were removed from the air quality permit, per TEP's request.
Att. "B" Section V	X			Fossil Fuel Fired Heaters TEP proposed the addition of 42 fossil fuel fired space heaters as part of this renewal permitting action. The requirements for these units were added to Section V of Attachment "B".
Att. "B" Condition VI.B			X	Emergency Internal Combustion Engines (ICEs) The limit for the hours of operation and fuel requirements were removed from this section since these standards are not required under NSPS, NESHAP or the A.A.C.
Att. "B" Condition VI.C.2.g(1)-(2)	X			Emergency Internal Combustion Engines (ICEs) Requirements from 40 CFR 1068.101(b) were added to this permit condition.
Att. "B" Condition VI.D.2.g		X		Emergency Internal Combustion Engines (ICEs) Former Condition VII.D.2.g was moved to Condition VII.C.2.c.
Att. "B" Condition VI.C.4		X		Emergency Internal Combustion Engines (ICEs) This section was revised to include a table to clarify the emission limits for the spark ignition engines and fire pump.
Att. "B" Condition VI.C.6	X			Emergency Internal Combustion Engines (ICEs) Added the statement from 40 CFR 63.6590(c) to this section.
Att. "B" Condition VI.D.2.a	X			Emergency Internal Combustion Engines (ICEs) Added the requirement from 40 CFR 63.6650(a).
Att. "B" Condition VI.D.2.a	X			Emergency Internal Combustion Engines (ICEs) A condition stating there is no time limit during emergency operation was added to the permit.
Att. "B" Condition VI.D.3.d(1)		X		Emergency Internal Combustion Engines (ICEs) The recordkeeping requirements related to operations during demand response were removed per the Guidance on Vacatur of RICE NESHAP and NSPS Provisions for Emergency Engines on April 15, 2016.
Att. "B" Condition VI.D.3.d			X	Emergency Internal Combustion Engines (ICEs) Duplicate of Condition VII.D.3.a.
Att. "B" Condition VI.D.3.d	X			Emergency Internal Combustion Engines (ICEs) Recordkeeping requirements under 63.6660(a)-(c) were added to the permit.

Section No.	Determination			Comments
	Added	Revised	Deleted	
Att. "B" Condition VI.E.3.e	X			Emergency Internal Combustion Engines (ICEs) The reporting requirements for deviations under 40 CFR 63.6655(f) were added to this section of the permit.
Att. "B" Condition VI.E.4			X	Emergency Internal Combustion Engines (ICEs) Requirement that compliance with IIII is compliance with ZZZZ was moved to condition VI.C.6.
Att. "B" Condition VII.D.5	X			Spark Ignition Standby Engine Subject to NSPS Subpart JJJJ Added requirements from 40 CFR 60.4243(a)(1) and 40 CFR 1068.101(b)(1) and (b)(7)(i) to the air quality permit.
Att. "B" Condition VII.D.6	X			Spark Ignition Standby Engine Subject to NSPS Subpart JJJJ The emergency engine requirements under 40 CFR 60.4243(d) were added to the air quality permit.
Att. "B" Condition VII.D.7	X			Spark Ignition Standby Engine Subject to NSPS Subpart JJJJ Requirement that compliance with JJJJ is compliance with ZZZZ was added to the permit.
Att. "B" Condition XIII.B.2.d			X	Fly Ash Handling – Unit 1 and Unit 2 The requirements related to handling fly ash from the Irvington Generating Station were removed per TEP's request.
Att. "B" Condition XV.A	X			Activated Carbon Silo Added applicability statement to this section.
Att. "B" Section XVI			X	Evaporative Water Spray System (EWS) Per TEP's request, the requirements related to the EWS have been removed from the air quality permit.
Att. "B" Section XVI		X		Fugitive Dust Requirements This section has been updated to reflect the most recent boilerplate language.
Att. "B" Section XVII			X	Mobile Source Requirements The mobile source requirements have been removed from the air quality permit.
Att. "C"		X		Equipment List: Revised to reflect the most recent equipment operating at the facility and to include equipment information provided.

XI. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

Table 9 contains an inclusive but not an exhaustive list of the monitoring, recordkeeping and reporting requirements prescribed by the air quality permit. The table below is intended to provide insight to the public for how the Permittee is required to demonstrate compliance with the emission limits in the permit.

Table 9: Permit No. 93322

Emission Unit	Pollutant/ Standard	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Unit 1 and Unit 2	Opacity	15% (6-minute averages) *	Continuous opacity monitoring system (COMS) to determine opacity.	Comply with all recordkeeping and reporting requirements of 40 CFR Part 75, Subparts F and G.	Comply with all recordkeeping and reporting requirements of 40 CFR Part 75, Subparts F and G. Submit quarterly excess emissions and monitoring system performance (EEMSP) reports.
	PM/PM ₁₀	0.034 lb/MMBtu*	Annual performance testing using EPA Reference Method 5.	Subject to general recordkeeping requirements in Section XII of Att. "A".	Submit performance test reports within 4 weeks of completing the test.
		0.03 lb/MMBtu*			
Unit 1 and Unit 2	SO ₂	0.690 lb/MMBtu*	Monitor SO ₂ emissions using CEMS.	Comply with all applicable recordkeeping and reporting requirements of 40 CFR Part 75 Subparts F and G.	Submit quarterly EEMSP reports. If any three contiguous one-hour periods exceed 0.690 lb/MMBtu, submit an excess emissions report.
		0.27 lb/MMBtu* (12-month rolling average, averaged over Unit 1 and Unit 2)	Monitor SO ₂ emissions using CEMS.	Calculate the 12-month rolling average.	If the 12-month rolling average exceeds 0.27 lb/MMBtu, submit an excess emissions report.

Emission Unit	Pollutant/ Standard	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
		85% Reduction (90-day rolling average)*	Record hourly average boiler inlet concentrations. Record hourly average boiler outlet concentrations.	Each day, calculate and record the daily average SO ₂ reduction and 90-day rolling average.	Submit an excess emissions report if the 90-day rolling average removal efficiency is below 85%.
Unit 1 and Unit 2	NO _x	0.697 lb/MMBtu*	Monitor NO _x emissions using CEMS.	Comply with all recordkeeping and reporting requirements of 40 CFR Part 75, Subparts F and G.	Submit quarterly EEMSP reports. If any three contiguous one-hour periods exceed 0.697 lb/MMBtu, submit an excess emissions report.
		0.22 lb/MMBtu (12-month rolling average) **	Monitor emissions using CEMS.	Comply with all recordkeeping and reporting requirements of 40 CFR Part 75, Subparts F and G. Record hourly average emission rate. Calculate 12-month rolling average emission rate.	Submit an excess emissions report if the 12-month rolling average exceeds 0.22 lb/MMBtu
Unit 3 and Unit 4	Opacity	15% (6-minute averages) *	COMS required to measure opacity.	Comply with all applicable recordkeeping and reporting requirements of 40 CFR Part 75, Subparts F and G.	Submit quarterly EEMSP reports. Comply with all applicable recordkeeping and reporting requirements of 40 CFR Part 75, Subparts F and G.
Unit 3 and Unit 4	PM (excluding condensable)	0.015 lb/MMBtu (3- hour average) *	Annual performance test using EPA Reference Method 5.	Subject to general recordkeeping requirements in Section XII of Att. "A".	Submit performance test reports within 4 weeks of completing the test.

Emission Unit	Pollutant/ Standard	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
	PM ₁₀ (including filterable and condensable)	0.055 lb/MMBtu (3-hour average) *	Annual performance test using EPA Reference Method 201 or 201A for filterable PM ₁₀ and Reference Method 202 for condensable PM ₁₀ .	Subject to general recordkeeping requirements in Section XII of Att. "A".	Submit performance test reports within 4 weeks of completing the test.
Unit 4	PM	0.14 lb/MWh* or 0.015 lb/MMBtu* or 0.03 lb/MMBtu and 99.9% reduction*	Annual performance test using EPA Reference Method 5.	Subject to general recordkeeping requirements in Section XII of Att. "A".	Submit performance test reports within 4 weeks of completing the test. Submit the performance test data from the performance test and from the performance evaluation of the continuous monitors (including the transmissometer).
Unit 3	SO ₂	1.2 lb/MMBtu and 90% reduction*; or 70% reduction when emissions are less than 0.6 lb/MMBtu*; or 0.15 lb/MMBtu*; and/or 1.4 lb/MWh*	CEMS to measure SO ₂ emissions or use an "as-fired" fuel monitoring system (upstream of the coal pulverizers) meeting the requirements of EPA Reference Method 19.	Obtain emissions data for at least 18 hours in at least 22 out of 30 successive boiler operating days (BOD) or supplement in accordance with the requirements of NSPS Subpart Da. Comply with all applicable recordkeeping and reporting requirements of 40 CFR Part 75, Subparts F and G, respectively.	Submit data from the performance test and from the performance evaluation of the continuous monitors to the Director and the Administrator. Submit reports containing the average SO ₂ emission rates and percent reduction for each 30 successive boiler operating days for each quarter.
Unit 4	SO ₂	1.4 lb/MWh* or	CEMS to measure SO ₂ emissions or use an "as-fired" fuel monitoring	Obtain emissions data for at least 90% of all operating hours for 30 successive boiler operating days	Submit data from the performance test and from the performance evaluation of the continuous

Emission Unit	Pollutant/ Standard	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
		95% reduction (30-day rolling average)*	system (upstream of the coal pulverizers) meeting the requirements of EPA Reference Method 19.	(BOD) or supplement in accordance with the requirements of NSPS Subpart Da. Comply with all applicable recordkeeping and reporting requirements of 40 CFR Part 75, Subparts F and G.	monitors to the Director and the Administrator. Submit reports containing the average SO ₂ emission rates and percent reduction for each 30 successive boiler operating days for each quarter.
Unit 3	NO _x	1.6 lb/MWh* gross energy output (30- BOD rolling average)	CEMS to measure NO _x emissions. Conduct performance tests in accordance with 60.8.	Obtain emission data from the continuous NO _x emission monitoring systems for at least 18 hours in at least 22 out of each 30 successive operating days. Comply with all applicable recordkeeping and reporting requirements of 40 CFR Part 75, Subparts F and G.	Submit performance test data from the performance evaluation of the continuous monitors. Submit reports containing the average NO _x emission rates and percent reduction for each 30 successive boiler operating days for each quarter
Unit 4	NO _x	1.0 lb/MWh* gross energy output (30- day rolling average)	CEMS to measure NO _x emissions.	Obtain emission data for at least 90 percent of all operating hours for each 30 successive boiler operating days Comply with all applicable recordkeeping and reporting requirements of 40 CFR Part 75, Subparts F and G.	Submit performance test data from the performance evaluation of the continuous monitors. Submit reports containing the average NO _x emission rates and percent reduction for each 30 successive boiler operating days for each quarter
Unit 3 and Unit 4	CO	0.15 lb/MMBtu* (30-day rolling average)	Operate a CEMS to measure CO emissions.	Calculating the arithmetic average of all hourly CO emission rates for the 30 successive calendar days, except for data obtained during startup, shutdown or emergency	If the 30-day rolling average CO emission rate exceeds 0.15 lb/MMBtu, submit an excess emissions report.

Emission Unit	Pollutant/ Standard	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
				conditions as defined by the permit.	
Unit 3 and Unit 4	VOC	0.06 lb/ton of coal* (3-hour average)	Conduct a performance test using EPA Reference Method 18 or 25A within 12-months of issuance of this air quality permit. Subsequent annual tests shall be conducted if the results of the performance test are greater than or equal to 50% of the emission limit.	Subject to general recordkeeping requirements in Section XII of Att. "A".	Submit performance test reports within 4 weeks of completing the test.
Unit 3 and Unit 4	HF	0.00044 lb/MMBtu* (3-hour average)	Conduct a performance test using EPA Reference Method 26A within 12-months of issuance of this air quality permit. Subsequent annual tests shall be conducted if the results of the performance test are greater than or equal to 50% of the emission limit.	Subject to general recordkeeping requirements in Section XII of Att. "A".	Submit performance test reports within 4 weeks of completing the test.
Unit 3 and Unit 4	Pb	0.00016 lb/MMBtu (3-hour average)	Conduct a performance test using EPA Reference Method 12 or 29 within 12-months of issuance of this air quality permit. Subsequent annual tests shall be conducted if the	Subject to general recordkeeping requirements in Section XII of Att. "A".	Submit performance test reports within 4 weeks of completing the test.

Emission Unit	Pollutant/ Standard	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
			results of the performance test are greater than or equal to 50% of the emission limit.		
Unit 1, Unit 2, Unit 3 and Unit 4	SO ₂	8,448 lb/hr; and 10,800 tons per year (12-month rolling total)	Use CEMS to demonstrate compliance with the hourly and annual emission limits.	Calculate and record the three-hour average mass emission rate for each steam generating unit and calculate the combined 3-hour average emission rate. Calculate and record the monthly mass emissions for each steam generating unit and calculate the 12-month rolling total emissions.	If any one-hour period exceeds 8,488 lb/hr, submit an excess emissions report. If the combined mass emissions exceed 10,800 tpy on a rolling 12-month basis, submit an excess emission report.
Unit 1, Unit 2, Unit 3 and Unit 4	NO _x	9,600 tpy (12-month rolling total)	Use CEMS to demonstrate compliance with the annual emission limit.	Calculate and record the monthly mass emissions for each steam generating unit and calculate the 12-month rolling total emissions.	If the combined mass emissions exceed 9,600 tpy on a rolling 12-month basis, submit an excess emission report.
Unit 1, Unit 2, Unit 3 and Unit 4	H ₂ SO ₄	211 tpy (12-month rolling)	Use the sulfur compound emission ratios for each unit to determine the H ₂ SO ₄ emissions from each unit.	Calculate and record the combined monthly mass emissions of sulfuric acid mist for Unit 1, Unit 2, Unit 3, and Unit 4 and the 12-month rolling total emissions.	If the combined mass emissions exceed 211 tpy on a rolling 12-month basis, submit an excess emission report.
Unit 1, Unit 2, Unit 3 and Unit 4	PM	0.3 lb/MWh (30-BOD rolling average)	PM CEMS or quarterly performance stack testing	Collect 30-boiler operating days of quality assured emissions data from the PM CEMS; or Conduct testing.	If a PM CEMS is used, meet the electronic reporting requirements of appendix C to 40 CFR 63 Subpart UUUUU. If a CMS is used to comply with an emissions or operating limit, submit

Emission Unit	Pollutant/ Standard	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
					an excess emission and monitor downtime summary report described in 40 CFR 63.10(e)(3)(vi).
Unit 1, Unit 2, Unit 3 and Unit 4	Hg	1.2 lb/TBtu or 0.013 lb/GWh (30-BOD rolling average)	Hg CEMS or sorbent trap	Collect 30-boiler operating days of quality assured emissions data from the Hg CEMS or sorbent trap system.	<p>If an Hg CEMS is used, meet the electronic reporting requirements of appendix A to 40 CFR 63, Subpart UUUUU.</p> <p>If a CMS is used to comply with an emissions or operating limit, submit an excess emission and monitor downtime summary report described in 40 CFR 63.10(e)(3)(vi).</p>
Unit 1, Unit 2, Unit 3 and Unit 4	Acid Gases (HCl or SO ₂)	<p>HCl: 0.002 lb/MMBtu or 0.02 lb/MWh (30-BOD rolling average)</p> <p>SO₂: 0.2 lb/MMBtu or 1.5 lb/MWh (30-BOD rolling average)</p>	Use of an HCl or SO ₂ CEMS, or conduct quarterly stack testing for each unit.	Collect 30-boiler operating days of quality assured emissions data from the HCl CEMS or SO ₂ CEMS.	<p>If an HCl CEMS is used, meet the electronic reporting requirements of appendix B to 40 CFR 63 Subpart UUUUU.</p> <p>If a SO₂ CEMS is used, use EPA's Emissions Collection and Monitoring Plan System (ECMPS) Client Tool to information to EPA.</p> <p>Submit an excess emission and monitor downtime summary report described in 40 CFR 63.10(e)(3)(vi).</p>
Fossil Fuel Fired Heaters	Opacity	15%	Monitoring for opacity from the fossil fuel fired heaters consists of	Maintain records of fuel firing rate and ash content of liquid fuel.	Report all 6-minute periods in which the opacity exceeds 15%.

Emission Unit	Pollutant/ Standard	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
			recordkeeping requirements.		
	SO ₂	1.0 lb/MMBtu	Monitoring for the fossil fuel fired heaters consists of recordkeeping requirements.	Maintain records of the fuel supplier contractual agreement containing the sulfur content of the fuel.	N/A
Emergency ICE (subject to state regulations)	Opacity	40% (visible emissions for the first 10 minutes are exempt)	Conduct opacity monitoring for every 120 hours of continuous operation.	Maintain records of the name of the observer, the date on which the observation was made, and the results of the observation.	Report all 6-minute periods which the opacity exceeded 40%.
	SO ₂	1.0 lb/MMBtu	Monitoring for the emergency engines consists of recordkeeping requirements.	Record the daily sulfur content of the fuel used in the engines, which may consist of keeping a copy of the fuel supplier certifications which specify the sulfur content of the fuel.	Report to the Director any daily period which the sulfur content exceeds 0.8%.
Cooling Towers (CT1 and CT2)	PM	108.4 lb/hr	Measure and record twice per month the Total Dissolved Solids (TDS) of the circulating water used in each CT using EPA's Residue Filterable Method 160.1.	Calculate the particulate matter emission rate from each CT twice per month.	Report any periods in which the calculated particulate matter emission rate exceeds the emission limit.
	Opacity	20% (excluding uncombined water)	Conduct weekly surveys of visible emissions from the cooling towers, when in operation.	Maintain records of the name of the observer, the date on which the observation was made, and the results of the observation.	Report any 6-minute observation that is greater than 20% opacity.

Emission Unit	Pollutant/ Standard	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Cooling Towers (CT3 and CT4)	PM	12.32 lb/hr	Measure and record twice per month the Total Dissolved Solids (TDS) of the circulating water used in each CT using EPA's Residue Filterable Method 160.1.	Calculate the particulate matter emission rate from each CT twice per month.	Report any periods in which the calculated particulate matter emission rate exceeds the emission limit.
	Opacity	20% (excluding uncombined water)	Conduct weekly surveys of visible emissions from the cooling towers, when in operation.	Maintain records of the name of the observer, the date on which the observation was made, and the results of the observation.	Report any 6-minute observation that is greater than 20% opacity.
Coal Preparation Plant (coal processing and conveying)	Opacity	20%	Conduct weekly surveys of visible emissions, when in operation.	Maintain records of the name of the observer, the date on which the observation was made, and the results of the observation.	Report any 6-minute observation that is greater than 20% opacity.
Coal Preparation Plant (baghouse)	Opacity	20%	Conduct weekly surveys of visible emissions, when in operation.	Maintain records of the name of the observer, the date on which the observation was made, and the results of the observation.	Report any 6-minute observation that is greater than 20% opacity.
Coal Preparation Plant (baghouses installed for Unit 3 and Unit 4)	Opacity & PM	10%* and 0.01 gr/dscf	Conduct weekly surveys of visible emissions, when in operation. If an opacity exceedance is detected and the Permittee is unable to identify adjustments or repairs necessary to address the opacity exceedance within 72 hours, a performance	Maintain records of the name of the observer, the date on which the observation was made, and the results of the observation.	Report any 6-minute observation that is greater than 10% opacity.

Emission Unit	Pollutant/ Standard	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
			test shall be conducted within 180 days to show compliance with the PM limit.		
Coal Preparation Plant (coal storage piles)	Opacity	40%	Conduct weekly surveys of visible emissions, when in operation.	Maintain records of the name of the observer, the date on which the observation was made, and the results of the observation.	Report any 6-minute observation that is greater than 40% opacity.
Refined Coal Facility	Opacity	20%	Conduct weekly surveys of visible emissions, when in operation.	Maintain records of the manufacturer's specifications of the vent filters. Maintain records of emissions related maintenance performed on the refined coal facility.	Report any 6-minute observation that is greater than 20% opacity.
Lime Handling – Unit 1 and Unit 2	Opacity	20%	Conduct weekly surveys of visible emissions, when in operation.	Maintain records of emissions related maintenance performed on the baghouses. Maintain records of the name of the observer, the date on which the observation was made, and the results of the observation.	Report any 6-minute observation that is greater than 20% opacity.
Lime Handling – Unit 3 and Unit 4 (lime handling operation)	Opacity	20%	Conduct weekly surveys of visible emissions, when in operation.	Maintain records of the name of the observer, the date on which the observation was made, and the results of the observation.	Report any 6-minute observation that is greater than 20% opacity.

Emission Unit	Pollutant/ Standard	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
	PM	0.01 gr/dscf	Monitoring for this requirement consists of recordkeeping.	Maintain records of emissions related maintenance performed on the lime handling system fabric filter baghouses	No reporting requirements required for this limit.
Lime Handling – Unit 3 and Unit 4 (baghouses)	Opacity	10%*	Conduct weekly surveys of visible emissions, when in operation.	Maintain records of emissions related maintenance performed on the lime handling system fabric filter baghouses. Maintain records of the name of the observer, the date on which the observation was made, and the results of the observation.	Report any 6-minute observation that is greater than 10% opacity.
Fly Ash Handling – Unit 1 and Unit 2	Opacity	20%	Conduct weekly surveys of visible emissions, when in operation.	Maintain records of emissions related maintenance performed on the Dust Filter Module. Maintain records of the name of the observer, the date on which the observation was made, and the results of the observation.	Report any 6-minute observation that is greater than 20% opacity.
Fly Ash Handling – Unit 3 and Unit 4 (handling operations)	Opacity	20%	Conduct weekly surveys of visible emissions, when in operation.	Maintain records of the name of the observer, the date on which the observation was made, and the results of the observation.	Report any 6-minute observation that is greater than 20% opacity.
Fly Ash Handling – Unit 3 and Unit 4 (baghouse)	Opacity & PM	10% 0.01 gr/dscf	Conduct weekly surveys of visible emissions, when in operation.	Maintain records of emissions related maintenance performed on the fabric filter baghouses.	Report any 6-minute observation that is greater than 10% opacity.

Emission Unit	Pollutant/ Standard	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
				Maintain records of the name of the observer, the date on which the observation was made, and the results of the observation.	
Activated Carbon Silo	Opacity	20%	Conduct weekly surveys of visible emissions, when in operation.	Maintain records of the name of the observer, the date on which the observation was made, and the results of the observation.	Report any 6-minute observation that is greater than 20% opacity.
Fugitive Dust	PM	40% Opacity	<p>A Method 9 observer is required to conduct a survey of visible emissions every two weeks.</p> <p>The Permittee shall maintain and implement a site dust control practice. The Permittee shall keep the dust control practice readily available for inspection. The dust control practice will be a living document that will be updated as needed to allow for practical changes at the facility.</p>	Record of the dates and types of dust control measures employed, and if applicable, the results of any Method 9 observations, and any corrective action taken to lower the opacity of any excess emissions.	Report any 6-minute observation that is greater than 40% opacity.
Abrasive Blasting	PM	20% Opacity	Monitoring for abrasive blasting consists of recordkeeping requirements.	Record the date, duration and pollution control measures of any abrasive blasting project.	N/A

Emission Unit	Pollutant/ Standard	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Spray Painting	VOC	20% Opacity Control 96% of the overspray	Monitoring for spray painting operations consists of recordkeeping requirements.	Maintain records of the date, duration, quantity of paint used, any applicable MSDS, and pollution control measures of any spray-painting project.	N/A
Demolition/ Renovation	Asbestos	N/A	Monitoring for demolition/renovation activities consists of recordkeeping requirements.	Maintain records of all asbestos related demolition or renovation projects including the “NESHAP Notification for Renovation and Demolition Activities” form and all supporting documents	N/A

*Excludes periods of startup, shutdown and malfunction as defined by the permit.

** Excludes periods of major burner malfunction as defined in Condition I.C.7 of Attachment “B” of the permit.

XII. COMPLIANCE ASSURANCE MONITORING (CAM)

A. Overview

CAM applies to pollutant-specific emission units (PSEU) at a Title V major source if the unit meets all of the following criteria:

1. The unit is subject to an emission limit or standard for the applicable regulated air pollutant;
2. The unit uses a control device to achieve compliance with the emission limit or standard; and
3. The unit has "potential pre-control device emissions" of the applicable regulated air pollutant equal to or greater than 100% of the amount (tons/year) required for a source to be classified as a major source. "Potential pre-control device emissions" means potential to emit (PTE, as defined in Title V) except emissions reductions achieved by the applicable control device are not taken into account.
4. The unit is not exempted by the conditions outlined at 40 CFR 64.2(b).

The general purpose of monitoring required by the CAM rule is to assure compliance with emission standards by ensuring that control devices meet and maintain the assumed control efficiencies. Compliance is ensured through requiring monitoring of the operation and maintenance of the control equipment and, if applicable, operating conditions of the pollutant-specific emissions unit.

For the PSEUs that have post control potential to emit equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source, for each parameter monitored, the owner shall collect four or more data values equally spaced over each hour. Such units are defined as "large" PSEUs. For all other PSEUs ("small" PSEUs), the monitoring shall include some data collection at least once per 24-hour period.

Unit 1, Unit 2, Unit 3 and Unit 4 are the only emission units at SGS which have uncontrolled emissions above major source thresholds (MST) for any regulated air pollutant. Table 10 below evaluates CAM applicability for each regulated air pollutant emitted by each unit.

Table 10 CAM Evaluation for Unit 1, Unit 2, Unit 3 and Unit 4

Emission Unit	Pollutant	Emission Control	Emission Limit	Pre-control PTE above MST?	Subject to CAM?
Unit 1 and Unit 2	PM	Baghouse	0.034 lb/MMBtu	Yes	Yes
			0.03 lb/MMBtu	Yes	Yes
	SO ₂	SDA	0.690 lb/MMBtu	Yes	No, exempt under 40 CFR 64.2(b)(1)(vi).
			0.27 lb/MMBtu	Yes	No, exempt under 40 CFR 64.2(b)(1)(vi).

Emission Unit	Pollutant	Emission Control	Emission Limit	Pre-control PTE above MST?	Subject to CAM?
			85% Reduction	Yes	No, exempt under 40 CFR 64.2(b)(1)(vi).
Unit 1 and Unit 2	SO ₂	SDA	6,099 tpy (Unit 1) 5,765 tpy (Unit 2)	Yes	No, exempt under 40 CFR 64.2(b)(1)(iv).
	NO _x	LNB & OFA	0.697 lb/MMBtu	Yes	No, exempt under 40 CFR 64.2(b)(1)(vi).
			0.22 lb/MMBtu	Yes	No, exempt under 40 CFR 64.2(b)(1)(vi).
	CO	None	N/A	N/A	No, the units do not meet all of the requirements in XII.A.1 through 3.
	VOC	None	N/A	N/A	No, the units do not meet all of the requirements in XII.A.1 through 3.
	Pb	None	N/A	N/A	No, the units do not meet all of the requirements in XII.A.1 through 3.
Unit 3 and Unit 4	PM	Baghouse	0.015 lb/MMBtu	Yes	Yes
	PM ₁₀	Baghouse	0.055 lb/MMBtu	Yes	Yes
Unit 4	PM	Baghouse	0.14 lb/MWh or 0.015 lb/MMBtu or alternative NSPS Subpart Da limit	Yes	No, exempt under 40 CFR 64.2(b)(1)(i).
Unit 3 and Unit 4	SO ₂	SDA	NSPS Subpart Da limits	Yes	No, exempt under 40 CFR 64.2(b)(1)(i).
	NO _x	LNB and SCR	NSPS Subpart Da limits	Yes	No, exempt under 40 CFR 64.2(b)(1)(i).
	CO	None	0.15 lb/MMBtu	N/A	No, the units do not operate a control device to achieve compliance.
	VOC	None	0.06 lb/ton of coal combusted	N/A	No, the units do not operate a control device to achieve compliance.
	Pb	None	0.000016 lb/MMBtu	N/A	No, the units do not meet all of the requirements in XII.A.1 through 3.
	HF	SDA	0.00044 lb/MMBtu	Yes	Yes

Emission Unit	Pollutant	Emission Control	Emission Limit	Pre-control PTE above MST?	Subject to CAM?
Unit 1, 2, 3 and 4	SO ₂	SDA	8,448 lb/hr 10,800 tpy	Yes	No, exempt under 40 CFR 64.2(b)(1)(v).
	SO ₂ (Optional MATS limit)	SDA	0.02 lb/MMBtu or 1.5 lb/MWh	Yes	No, exempt under 40 CFR 64.2(b)(1)(i).
	NO _x	See above for units	9,600 tpy	Yes	No, exempt under 40 CFR 64.2(b)(1)(v).
	H ₂ SO ₄	SDA	Yes	No	No, exempt under 40 CFR 64.2(b)(1)(v).
	PM	Baghouses	0.03 lb/MMBtu	Yes	No, exempt under 40 CFR 64.2(b)(1)(i).
	Hg	Calcium bromide and activated carbon injection	1.2 lb/TBtu or 0.013 lb/GWh	No	No, the units do not meet all of the requirements in XII.A.1 through 3.
	HCl (Optional MATS limit)	SDA	0.002 lb/MMBtu or 0.02 lb/MWh	Yes	No, exempt under 40 CFR 64.2(b)(1)(i).

Units 1 through 4 each have post control emissions above MST for particulate matter and therefore are considered “large” PSEU for the purposes of CAM. TEP is required to collect four or more data values equally spaced over each hour for each parameter monitored. Unit 3 and Unit 4 have uncontrolled emissions above MST for HF, however post control emissions are below the 10 tpy MST. Therefore, Unit 3 and Unit 4 are considered “small” PSEU for the purposes of CAM and TEP is required to collect data at least once per 24-hour period.

B. Monitoring Approach for PM

1. Unit 1 and Unit 2

a. Background

Unit 1 and Unit 2 are each subject to a 0.034 lb/MMBtu emission limit for particulate matter, established under Condition XIII of Approval to Construct of December 21, 1977. This limit is more stringent than the emission limit established under 40 CFR 60 Subpart D, which is incorporated by reference in the air quality permit. The units operate baghouses with a control efficiency of 99.9% to control particulate matter emissions. COMS are operated on each of the units to demonstrate compliance with the 15% opacity limit. In their CAM Plan, TEP proposed to demonstrate compliance with the PM emission limit using the COMS and conducting an annual analysis of the bags in the baghouse. An outline of the CAM requirements can be found in Table 11 below.

Table 11 Monitoring Approach for Unit 1 and Unit 2

	Indicator No. 1	Indicator No. 2
Indicators	Visible Emissions Opacity	Bag condition
Measurement Approach	Visible Emissions (Opacity) will be measured continuously with a continuous Opacity Monitoring System (COMS) installed on each stack.	Sampling and analysis of representative bag samples will be done once per year. The analyses of representative bag samples will be used as a factor in determining when bag replacement is to be scheduled. The Baghouse will have an inspection and maintenance program that includes an internal inspection of the baghouse to be performed during a scheduled major outage. Any known broken bags will be either replaced or capped off until ready to be replaced. Compartments with one or more broken bags, that have not been capped off or replaced, will be isolated.
Indicator Range	Visible Emissions greater than 12 percent Opacity based on a 3-hour rolling average (except during unit startup, shutdown, and malfunction as defined in Conditions #s I.D.8, 12, and 14 of Attachment “B” of the air quality permit.).	An excursion is defined as failure to sample and analyze bag condition at least once per year.
Performance Criteria - Data Representativeness	Visible emissions (Opacity is measured on stack)	Scheduled internal baghouse inspection includes a visual inspection of the entire baghouse including individual bag compartments for signs of bag failure.
Performance Criteria - Operation Status	n/a	n/a
Performance Criteria - QA/QC Practices	TEP is required by the permit to meet the QA/QC requirements of 40 CFR Part 60, Appendix B, Performance Specification 1, “Specification and Test Procedures for Opacity Continuous Emission Monitoring Systems in Stationary Sources”	Experienced personnel perform inspections and maintenance.
Performance Criteria - Monitoring Frequency	Continuous opacity monitoring with data recorded as 6-minute averages.	Varies.

	Indicator No. 1	Indicator No. 2
Performance Criteria - Data Collection Procedure	Continuous	Results of inspections and maintenance activities performed are recorded. Results of annual bag analysis are kept on-file.
Performance Criteria - Averaging Period	3-hour rolling average of visible emissions (Opacity)	n/a

b. Rationale for Selection of Performance Indicator(s);

The presence of visible emissions, recorded as opacity with the COMS was selected as the performance indicator because it is indicative of operation of the fabric filter in a manner necessary to comply with the PM emission standard. When the fabric filter is operating properly, visible emissions from the exhaust will be minimal. Visible emissions greater than 12 percent for a 3-hour rolling average, as recorded by the COMS, indicates reduced performance of the PM control device; however, the presence of visible emissions (opacity) is used as the performance indicator.

c. Rationale for Selection of Indicator Level(s);

The selected indicator range of visible emissions greater than 12 percent opacity is based on a 3-hour rolling average. Past performance tests for Units 1 and 2 indicate that both units operate compliant with the PM limit by a comfortable margin while opacity observed during the 3-hour tests stays below 12 percent level. Although a 3-hour rolling average above 12 percent does not in itself constitute a violation of the PM standard, it does indicate that corrective action should be initiated so that any possible exceedance of the PM standard can be prevented.

2. Unit 3 and Unit 4

a. Background

Unit 3 and Unit 4 are each subject to BACT for filterable PM and PM₁₀. Each unit is required to meet a filterable PM standard of 0.015 lb/MMBtu heat input based on a three-hour averaging period, and a PM₁₀ standard of 0.055 lb/MMBtu heat input, based on a three-hour averaging period, representing BACT. These emission limits are more stringent than the emission limits established under 40 CFR 60 Subpart Da, which is incorporated by reference in the air quality permit. The units operate baghouses with a control efficiency of 99.9% to control particulate matter emissions. COMS are operated on each of the units to demonstrate compliance with the 15% opacity limit.

In their initial permitting action for Unit 3 and Unit 4, ADEQ approved a CAM Plan authorizing the use of a bag leak detection system (BLDS) to demonstrate compliance with the PM emission limit. However, after implementation, TEP determined that there were technical difficulties using this monitoring method, and the CAM Plan was revised during Renewal Permit No. 53418 to utilize the COMS in lieu of the BLDS. An outline of the CAM requirements can be found in Table 12 below.

Table 12 Monitoring Approach for Unit 3 and Unit 4

Indicator	Opacity of visible emissions
Measurement Approach	Visible emissions (Opacity) will be measured continuously with a COMS installed on each stack.
Indicator Range	<p>Visible emissions on a 24-hour rolling average basis not to exceed an opacity baseline level established during each performance test conducted according to Condition III.C.4.b of Attachment “B” of the permit. The value of the opacity baseline level is determined by averaging all of the 6-minute average opacity values (reported to the nearest 0.1 percent opacity) from the COMS measurements recorded during each of the test run intervals conducted for the performance test, and then adding 5.0 percent opacity to the calculated average opacity value for all of the test runs. The value of the baseline level shall not exceed 8.0 percent.</p> <p>A 24-hour rolling average opacity excluding periods of facility startup, shutdown and malfunction that is greater than the established opacity baseline level triggers an alarm and constitutes an excursion. Each subsequent 24-hour rolling period during which the alarm continues for the same reason shall be considered a single excursion.</p>
Performance Criteria - Data Representativeness	Visible emissions (Opacity is measured on stack)
Performance Criteria - Operation	n/a
Performance Criteria - QA/QC Practices	TEP is required by the permit to meet the QA/QC requirements of 40 CFR Part 60, Appendix B, Performance Specification 1, “Specification and Test Procedures for Opacity Continuous Emission Monitoring Systems in Stationary Sources”
Performance Criteria - Monitoring Frequency	Continuous opacity monitoring with data recorded as 6-minute averages.
Performance Criteria - Data Collection Procedure	Continuous
Performance Criteria - Averaging Period	Initiate investigation and possible corrective action within 24 hours of triggering an excursion for Unit 3 or Unit 4.

b. Rationale for Selection of Performance Indicator(s);

The presence of visible emissions, recorded as opacity with the COMS was selected as the performance indicator because it is indicative of operation of the fabric filter in a manner necessary to comply with the PM emission standard. When the fabric filter is operating properly, visible emissions from the exhaust will be minimal. Visible emissions greater than the baseline established pursuant to the permit up to a maximum of 8 percent for a 24-hour rolling average, as recorded by the COMS, indicates reduced performance of the PM control device; however, the presence of visible emissions (opacity) is used as the performance indicator.

c. Rationale for Selection of Indicator Level(s);

The selected indicator range of visible emissions is based on a 24-hour rolling average. Past performance tests for Units 3 and 4 indicate that both units operate compliant with the PM limit by a comfortable margin while opacity observed during the 24-hour tests stays below 8 percent level. Although a 24-hour rolling average above 8 percent does not in itself constitute a violation of the PM standard, it does indicate that investigation and possible corrective action should be initiated so that any possible exceedance of the PM standard can be prevented.

C. Unit 3 and Unit 4 Monitoring Approach for HF

1. Background

Unit 3 and Unit 4 are each subject to BACT and maximum achievable control technology (MACT) limits for HF. Each unit is required to meet a HF standard of 0.00044 lb/MMBtu heat input based on a three-hour averaging period. The units operate SDA and fabric filter baghouses, which have a removal efficiency of approximately 90% for HF emissions. The controlled emissions for each unit are below major source thresholds, therefore, the unit is considered a “small PSEU” for the purposes of CAM

Under 40 CFR 64.3(b)(4)(iii) TEP is required to obtain monitoring data at least once per 24-hour period. For the HF CAM plan, TEP proposed continuous monitoring of the SDA performance by monitoring SO₂ emissions, as a surrogate for HF emissions, using the existing SO₂ CEMS on Unit 3 and Unit 4. An outline of the CAM requirements can be found in Table 13 below.

Table 13 Monitoring Approach for Unit 3 and Unit 4

Indicator	Sulfur Dioxide Emissions (SO ₂)
Measurement Approach	SO ₂ emissions as measured by the SO ₂ CEMS are used as a surrogate for HF emissions
Indicator Range	Each one-hour period, in which the SO ₂ three-hour average, excluding periods of facility startup, shutdown and malfunction, is greater than 1.72 lb/MMBtu shall trigger an

	<p>alarm and constitute an excursion. This value was established based on a correlation of hourly SO₂ emissions and hourly HF emissions during performance testing specified in condition III.H.3.</p> <p>An excursion from the indicator ranges does not necessarily indicate an exceedance, deviation, or violation, but is indicative of the need for investigation and possible corrective action to minimize the potential for an exceedance, deviation or violation.</p>
Performance Criteria - Data Representativeness	SO ₂ CEMS must meet performance specifications and quality assurance requirements as set forth at 40 CFR Part 60, Appendices B and F, and 40 CFR Part 75, Appendices A and B. Relationship of SO ₂ and HF emissions is established during performance testing
Performance Criteria - Operation	SO ₂ CEMS must meet performance specifications and quality assurance requirements as set forth at 40 CFR Part 60, Appendices B and F, and 40 CFR Part 75, Appendices A and B.
Performance Criteria - QA/QC Practices	SO ₂ CEMS must meet performance specifications and quality assurance requirements as set forth at 40 CFR Part 60, Appendices B and F, and 40 CFR Part 75, Appendices A and B.
Performance Criteria - Monitoring Frequency	SO ₂ CEMS operation is continuous
Performance Criteria - Data Collection Procedure	SO ₂ CEMS operation is continuous. SO ₂ emission rate calculation is performed each hour, based on a rolling 3-hour average.
Performance Criteria - Averaging Period	SO ₂ emission rate calculation is performed each hour, based on a rolling 3-hour average, consistent with the averaging period of the HF emission standard.

2. Rationale for Selection of Performance Indicator(s);

SO₂ emissions, as measured by SO₂ CEMS will be used as a surrogate for HF emissions for CAM purposes. Because the combination of SDA and fabric filter baghouses control SO₂ and HF at similar efficiencies, controlled SO₂ emissions are indicative of the effectiveness of the control technology for minimizing HF emissions.

3. Rationale for Selection of Indicator Level(s);

Current hourly HF emission concentrations in lbs/MMBtu can be correlated to current hourly SO₂ emission concentrations in lbs/MMBtu, by using a conversion factor based on a ratio of HF hourly emissions from recent performance test data, and SO₂ hourly emission concentrations measured by CEMS during the corresponding test. This correlation can be calculated as follows:

$$HF_{current} \approx SO_{2current} * \frac{HF_{performance\ test\ value}}{SO_{2CEMS\ value\ during\ performance\ test}}$$

Equation 1

Using the rationale in Equation 1, a CEMS measured SO₂ lb/MMBtu maximum excursion level can be set according to Equation 2, as follows:

$$SO_{2excursion\ level} = HF_{limit} * \frac{SO_{2CEMS\ value\ during\ performance\ test}}{HF_{performance\ test\ value}}$$

Equation 2

The most recent HF Performance Tests for Unit 3 and Unit 4 were performed in 2013 and 2018. The results of each of these tests showed that collection levels of HF were beneath the reportable thresholds. For this reason, emission rates were calculated based on the detection or reporting limits, resulting in high biased reported HF emissions. In the 2013 performance test, emission rates were calculated and reported based on the Method Detection Limit (MDL).

In the 2018 performance test, emission rates were calculated and reported based on the Sample Quantitation Limit (SQL), which is the MDL corrected for sample dilution and other sample-specific adjustments. Since the SQL includes a dilution factor of 10, only the 2013 results will be used to calculate the excursion level.

See Table 14 and Table 15 for results summaries from these tests.

Table 14 – Unit 3 HF Performance Test Summary

Year	HF 3-Run Avg Emission Rate		SO ₂ Emission Rate during Performance Test	
	Value	Units	Value	Units
2013	1.67E-05	lbs/MMBtu (based on HF MDL)	6.20E-02	lbs/MMBtu (CEMS Hourly Average)
2018	1.30E-04	lbs/MMBtu (based on SQL w/10x DF)	1.32E-01	lbs/MMBtu (CEMS Hourly Average)

*For the reasons discussed above, the 2018 performance testing data was not used to determine the excursion level

Table 15 – Unit 4 HF Performance Test Summary

Year	HF 3-Run Avg Emission Rate		SO2 Emission Rate during Performance Test	
	Value	Units	Value	Units
2013	1.61E-05	lbs/MMBtu (based on HF MDL)	6.50E-02	lbs/MMBtu (CEMS Hourly Average)
2018	1.40E-04	lbs/MMBtu (based on SQL w/10x DF)	8.50E-02	lbs/MMBtu (CEMS Hourly Average)

*For the reasons discussed above, the 2018 performance testing data was not used to determine the excursion level

Using Equation 2, and the 2013 averaged values for both Units from Table 14 and Table 15, the excursion level using SO₂ emissions was calculated to be 1.72 lb/MMBtu, as exhibited in Equation 3.

$$0.00044 \frac{\text{lb}}{\text{MMBtu}}_{\text{HF Limit}} * \frac{0.064 \frac{\text{lb}}{\text{MMBtu}}_{\text{SO}_2 \text{ average}}}{0.0000164 \frac{\text{lb}}{\text{MMBtu}}_{\text{HF average}}} = 1.72 \frac{\text{lb}}{\text{MMBtu}}_{\text{HF excursion level}}$$

Equation 3

The calculated threshold is representative of performance test data, and indicative that if SO₂ is being controlled by the SDA and fabric filter baghouse, HF is also being controlled well below the limits set forth in this permit.

XIII. ENVIRONMENTAL JUSTICE ANALYSIS

The EPA (Environmental Protection Agency) defines Environmental Justice (EJ) to include the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The goal of completing an EJ assessment in permitting is to provide an opportunity for overburdened populations or communities to allow for meaningful participation in the permitting process. Overburdened is used to describe the minority, low-income, tribal and indigenous populations or communities that potentially experience disproportionate environmental harms and risks due to exposures or cumulative impacts or greater vulnerability to environmental hazards.

This renewal permitting action results in a net decrease in the facility-wide PTE due to the removal of the auxiliary boiler, therefore, the proposed changes in this permitting action will not result in any adverse impacts to the surrounding areas. While an EJ analysis is not required for this permitting action, the Department decided to conduct an EJ analysis using EPA's EJSCREEN tool to evaluate the demographics within a five-mile radius of SGS due to the type of facility being permitted. The analysis concluded there was no population within the selected area.

XIV. LEARNING SITE EVALUATION

In accordance with ADEQ's Environmental Permits and Approvals near Learning Sites Policy, the Department may be required to conduct an evaluation to determine if any nearby learning sites would be adversely impacted by the facility. Learning sites consist of all existing public schools, charter schools and private schools the K-12 level, and all planned sites for schools approved by the Arizona School Facilities Board. The learning sites policy was established to ensure that the protection of children at learning sites is considered before a permit approval is issued by ADEQ.

This renewal permit does not result in any increase in emissions above the permitting exemption threshold. Hence the facility is exempt from the learning sites evaluations.

XV. LIST OF ABBREVIATIONS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
BACT	Best Available Control Technology
BLDS	Bag Leak Detection System
BOD	Boiler Operating Day
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emissions Monitoring System
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e	CO ₂ equivalent basis
COMS	Continuous Opacity Monitoring System
EEMSP	Excess Emissions and Monitoring System Performance
EGU	Electricity Generating Unit
EJ	Environmental Justice
EPA	Environmental Protection Agency
EWS	Evaporative Water System
GHG	Greenhouse Gases
H ₂ SO ₄	Sulfuric acid
HAP	Hazardous Air Pollutant
HCl	Hydrogen Chloride
Hg	Mercury
HF	Hydrogen Fluoride
hr	Hour
lb	pound
LEE	Low Emitting EGU
LNB	Low NO _x Burners
MACT	Maximum Achievable Control Technology
MATS	Mercury and Air Toxics Standards
MDL	Method Detection Limit
MMBtu	Million British Thermal Units
MPR	Minor Permit Revision
MW	Megawatts
NAAQS	National Ambient Air Quality Standard
NO _x	Nitrogen Oxides
NO ₂	Nitrogen Dioxide
NOV	Notice of Violation

N ₂ O	Nitrous Oxide
NSR	New Source Review
NSPS	New Source Performance Standards
O ₃	Ozone
OFA	Overfire Air
Pb	Lead
PM	Particulate Matter
PM ₁₀	Particulate Matter less than 10 µm nominal aerodynamic diameter
PM _{2.5}	Particulate Matter less than 2.5 µm nominal aerodynamic diameter
PRB	Powder River Basin
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
SCR	Selective Catalytic Reduction
SDA	Spray Dry Absorbers
SGS	Springerville Generating Station
SO ₂	Sulfur Dioxide Significant Impact Levels
SPR	Significant Permit Revision
SQL	Sample Quantitation Limit
TDS	Total Dissolved Solids
TEP	Tucson Electric Power Company
TPH	Tons per Hour
TPY	Tons per Year
VOC	Volatile Organic Compound

Figure 1. Unit 1 and Unit 2 Process Flow Diagram

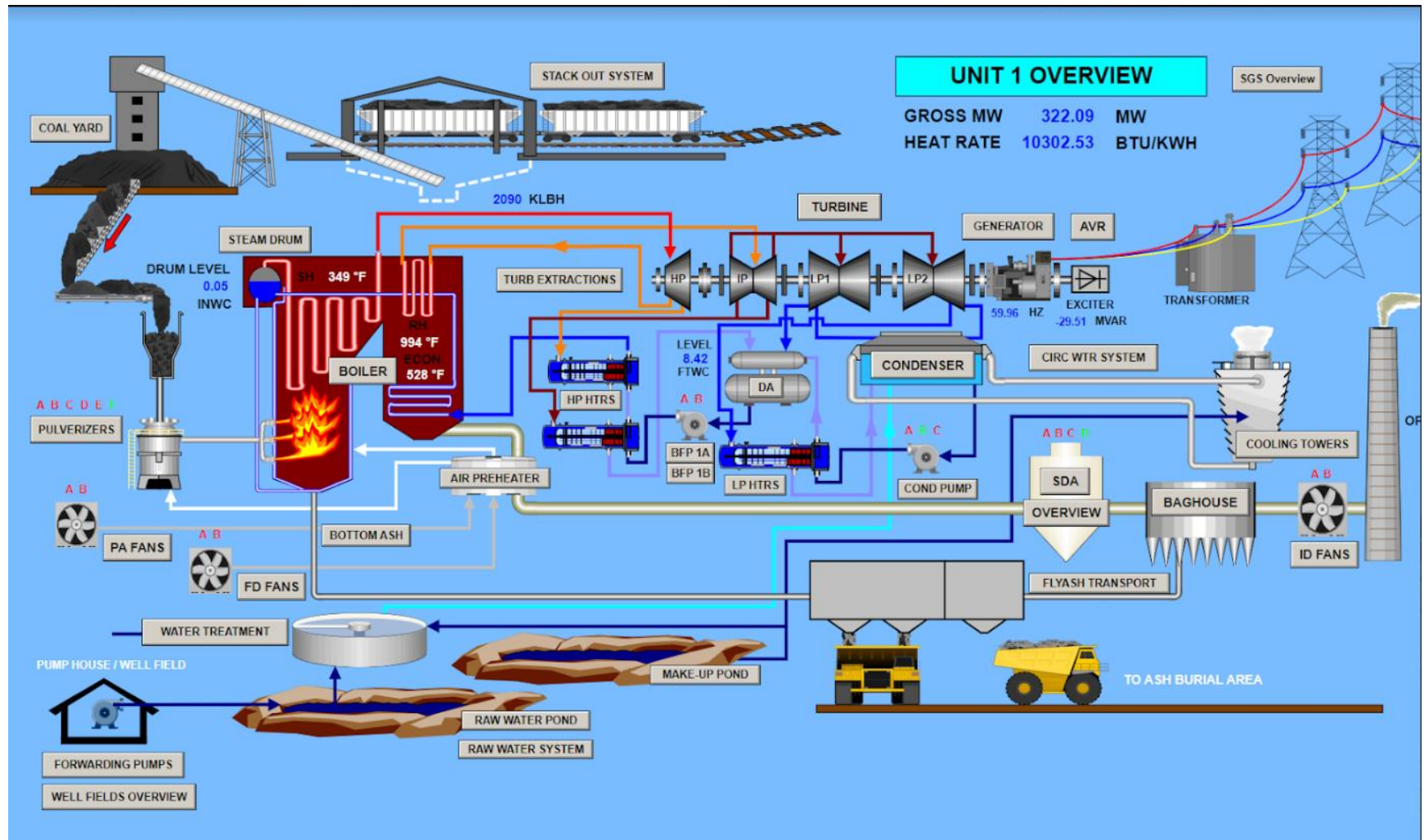


Figure 2. Unit 3 and Unit 4 Process Flow Diagram

